

02/04/14 Agenda

- Warm up exercise
- Quiz Corrections:
 - Quiz 5.4-5.5 corrections must be done by Thursday (2/6)
- Review Homework
 - Worksheet 6.2 day 3 - Solve Systems by Substitution
- Section 6.3 day 1 - Solve by Elimination

Homework - Worksheet 6.3 day 1 - Solve by Elimination

Warm Up - Homework out!

The sum of 2 numbers is 21. Their difference is 5. What are the 2 numbers?

$$8 = X - \text{SMALL}$$

$$13 = Y - \text{LARGE}$$

$$X + 5 = Y$$

$$X + Y = 21$$

$$X + (X + 5) = 21$$

$$\begin{array}{r} 2X + 5 = 21 \\ -5 \quad -5 \\ \hline \end{array}$$

$$2X = 16$$

$$\frac{2X}{2} = \frac{16}{2}$$

$$X = 8$$

$$X + 5 = Y$$

$$8 + 5 = Y$$

$$13 = Y$$

Warm Up - Homework out!

A shopper purchased 4 tables and 2 chairs for \$200. Another shopper bought 2 tables and 7 chairs (same tables & chairs as the first purchaser) for \$400. What is the cost for each table and chair?

Let x equal the number of chairs and let y equal the number of tables.

Write 2 equations to model the situation. Use substitution to solve.

$$4y + 2x = 200$$

$$2y + 7x = 400$$

$$2y + 7(100 - 2y) = 400$$

$$2y + 700 - 14y = 400$$

$$-12y + 700 = 400$$

$$\begin{array}{r} -700 \\ -12y + 700 = 400 \\ \hline -12y = -300 \end{array}$$

$$\begin{array}{r} -12y = -300 \\ \hline -12 \quad -12 \\ \hline \end{array}$$

$$y = 25$$

CHAIR \$25
TABLE \$50

$$\begin{array}{r} 4y + 2x = 200 \\ -4y \quad \quad \quad -4y \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{200 - 4y}{2}$$

$$x = 100 - 2y$$

$$\begin{array}{r} 4y + 2x = 200 \\ 4(25) + 2x = 200 \\ 100 + 2x = 200 \\ -100 \quad -100 \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{100}{2}$$

$$x = 50$$

What does "elimination" mean?	To take out and get rid of completely.
Elimination Method	Is best with systems with ONE solution.
When should I use it?	It's best to use when NEITHER equation has a variable isolated. Example: $4x - 7y = 9$ $-2x + 4y = 3$
Examples:	Solve the following systems by elimination:

STEPS

- 1.) FIND VAR WITH SAME COEFFICIENT
- 2.) IF DIFFERENT SIGN, ADD
IF SAME SIGN, SUBTRACT
3. SUBSTITUTE TO GET OTHER VAR.

1. $2x + 6y = 24$
 $+ -2x + 8y = 4$
 $\hline 0 + 14y = 28$
 $14y = 28$
 $\frac{14}{14} \frac{28}{14}$
 $y = 2$

$(6, 2)$

$2x + 6y = 24$
 $2x + 6(2) = 24$
 $2x + 12 = 24$
 $-12 \quad -12$
 $\hline 2x = 12$
 $\frac{2}{2} \frac{12}{2}$
 $x = 6$

2. $x + 3y = 17$
 $- (2x + 3y = 22)$
 $\hline -x + 0 = -5$
 $-x = -5$
 $x = 5$

$(5, 4)$

$x + 3y = 17$
 $5 + 3y = 17$
 $-5 \quad -5$
 $\hline 3y = 12$
 $\frac{3}{3} \frac{12}{3}$
 $y = 4$

6.3 - Solve SoE by Elimination

Target 6B
February 4, 2014

Examples:

3. $-3x + 4y = 12 \Rightarrow -3x + 4y = 12$
 $-6y + 3x = 18 \Rightarrow +3x - 6y = 18$

$$\begin{array}{r} -3x + 4y = 12 \\ + \quad +3x - 6y = 18 \\ \hline 0 - 2y = 30 \\ \hline -2 \quad -2 \\ \hline y = -15 \end{array}$$

 $-3x + 4(-15) = 12$
 $-3x - 60 = 12$

$$\begin{array}{r} -3x - 60 = 12 \\ +60 \quad +60 \\ \hline -3x = 72 \\ \hline -3 \quad -3 \\ \hline x = -24 \end{array}$$

 $(-24, -15)$

4. $2x - 3y = 14$
 $x + 3y = -11$

$$\begin{array}{r} 2x - 3y = 14 \\ + \quad x + 3y = -11 \\ \hline 3x = 3 \\ \hline x = 1 \end{array}$$

 $2(1) - 3y = 14 \Rightarrow -3y = 12 \Rightarrow y = -4$

$$\begin{array}{r} 1 + 3y = -11 \\ \hline -1 \quad -1 \\ \hline 3y = -12 \end{array}$$

 $(1, -4)$

YOU TRY:

HOMEWORK

6.3 day 1

"POLITICALLY
CORRECT"
JOKE

#1 $3x - 4y = 13$

$+ 2x + 4y = 2$

$$\begin{array}{r} 5x = 15 \\ \hline 5 \end{array}$$

$$x = 3$$

$$(3, -1)$$

$$2x + 4y = 2$$

$$2(3) + 4y = 2$$

$$6 + 4y = 2$$

$$\begin{array}{r} -6 \\ \hline \end{array}$$

$$4y = -4$$

$$\begin{array}{r} 4 \\ \hline \end{array}$$

$$y = -1$$

$$\begin{array}{rcl}
 x + 3y = 17 & & x + 3y = 17 \\
 (2x + 3y = 22) \cdot -1 = & + & -2x - 3y = -22 \\
 \hline
 & -1x & = -5
 \end{array}$$